

WHAT IS CLAIMED IS:

1. A method for manufacturing a monolithic piezoelectric part which has a plurality of piezoelectric ceramic layers and spaced internal electrode layers disposed in said piezoelectric ceramic part, wherein said piezoelectric ceramic making up said piezoelectric ceramic layers is formed of a perovskite compound oxide expressed by the general formula of ABO_3 , and comprises at least Pb for the A site component and at least Ti for the B site component; said method comprising:
 - providing a piezoelectric ceramic powdered raw material wherein the molar quantity of said A site component is reduced by about 0.5 mol% to 5.0 mol% from that of a stoichiometric composition;
 - 10 fabricating a layered article with said piezoelectric ceramic powdered raw material; and
 - sintering step said layered article within an atmosphere wherein the oxygen concentration is about 5% by volume or less but more than 0% by volume.
2. A method for manufacturing a monolithic piezoelectric part according to Claim 1, wherein, the average valence of said B site component of the ceramic raw material is greater than that of the stoichiometric composition.
3. A method for manufacturing a monolithic piezoelectric part according to Claim 2, wherein said B site component further comprises Ti and Zr; and wherein the average valence of said B site component is greater than 4.000 and less than 4.100.
4. A method for manufacturing a monolithic piezoelectric part according to Claim 3, wherein the molar quantity of Pb included in said A site component has been reduced by about 0.5 mol% to 5.0 mol% from that of the stoichiometric composition.

5. A method for manufacturing a monolithic piezoelectric part according to Claim 4, wherein said B site component further comprises Nb.
6. A method for manufacturing a monolithic piezoelectric part according to Claim 4, wherein said B site component further comprises Nb and Ni.
7. A method for manufacturing a monolithic piezoelectric part according to Claim 4, wherein said B site component further comprises at least one of Nb, Sb, Ta and W.
8. A method for manufacturing a monolithic piezoelectric part according to Claim 7, wherein said B site component further comprises at least one of Ni, Cr, Co and Mg.
9. A method for manufacturing a monolithic piezoelectric part according to Claim 8, wherein said layered article fabrication comprises a ceramic green sheet fabrication forming said piezoelectric ceramic powdered raw material into sheet form so as to fabricate a plurality of ceramic green sheets, forming an electrode pattern on at least two of said ceramic green sheets with an electroconductive paste for internal electrodes, and layering a plurality of ceramic green sheets upon which said electrode patterns have been formed so as to form a layered article.
10. A method for manufacturing a monolithic piezoelectric part according to Claim 9, wherein said electroconductive paste contains Ag as a primary component.
11. A method for manufacturing a monolithic piezoelectric part according to Claim 10, wherein said electroconductive paste contains Ag and Pd in a ratio of at least 70/30.
12. A method for manufacturing a monolithic piezoelectric part according to Claim 11, wherein said electroconductive paste contains Ag and Pd in a ratio of at

least 80/20 and the thickness of the layers is such that their thickness after sintering is
10 about 64µm or less.

13. A method for manufacturing a monolithic piezoelectric part according
to Claim 12, wherein said electroconductive paste contains Ag and Pd in a ratio of at
least 85/15 and the thickness of the layers is such that their thickness after sintering is
about 40µm or less.

14. A method for manufacturing a monolithic piezoelectric part according
15 to Claim 1, wherein said B site component further comprises Ti and Zr; and wherein
the average valence of said B site component is greater than 4.000 and less than 4.100.

15. A method for manufacturing a monolithic piezoelectric part according
to Claim 1, wherein said B site component further comprises Nb.

16. A method for manufacturing a monolithic piezoelectric part according
20 to Claim 1, wherein said layered article fabrication comprises a ceramic green sheet
fabrication forming said piezoelectric ceramic powdered raw material into sheet form
so as to fabricate a plurality of ceramic green sheets, forming an electrode pattern on
at least two of said ceramic green sheets with an electroconductive paste for internal
25 electrodes, and layering a plurality of ceramic green sheets upon which said electrode
patterns have been formed so as to form a layered article.

17. A method for manufacturing a monolithic piezoelectric part according
to Claim 16, wherein said electroconductive paste contains Ag as a primary
component.

18. A monolithic piezoelectric part comprising a plurality of piezoelectric
ceramic layers and spaced internal electrode layers disposed in said piezoelectric
ceramic part, wherein said piezoelectric ceramic making up said piezoelectric ceramic
layers is a sintered perovskite compound oxide expressed by the general formula of
ABO₃, and comprises at least Pb for the A site component and at least Ti for the B

site component, and wherein the molar quantity of said A site component is reduced by about 0.5 mol% to 5.0 mol% from that of a stoichiometric composition.

19. A monolithic piezoelectric part according to claim 18, wherein said layers have a thickness of about 64 μ m or less, the internal electrodes comprise Ag and the average valence of the B site component is greater than 4.000 and less than 4.100.

20. A monolithic piezoelectric part according to claim 1, wherein said layers have a thickness of about 40 μ m or less and the B site component comprises Nb.